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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/647,321 | 08/26/2003 | Susumu Kinoshita | 21.1997-C | 2029 |

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

DIACOU, ARI M

ART UNIT

PAPER NUMBER

3663

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 04/23/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/647,321 | Applicant(s) KINOSHITA ET AL. | |
| | Examiner Ari M. Diacou | Art Unit 3663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-39, 41, 42, 44 and 46-49 is/are pending in the application.
- 4a) Of the above claim(s) 49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35-39, 41, 42, 44 and 46-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claim 49 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 1-12-2006.

Response to Arguments

2. In the remarks filed 2-20-2007, applicant argued the following:
 - A. On page 5, that applicant has corrected the numbering of claim 46.
 - B. On page 5, that "Sugaya does not provide for flattening the optical power of output light from preceding amplifiers in a predetermined wavelength."
3. Argument A is convincing, the objection is hereby withdrawn.
4. Argument B is unconvincing, the VOA's of Sugaya only work in a predetermined wavelength.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 35-39, and 41-42, 44 and 46-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugaya (USPAP No. 5995274).

- Regarding claim 35, Sugaya discloses an optical amplifier comprising:
 - a plurality of optical amplification mediums for producing a gain, the gain having gain characteristics; [Fig. 27, #122]
 - a gain controller *constantly maintaining the gain for each optical amplification medium*; [#60₁]
 - and a gain-equalizer positioned after each optical amplification medium *and equalizing the gain-characteristic of the optical amplification mediums*, each gain-equalizer equalizing the gain characteristics of the preceding optical amplification medium. [#64]
- Regarding claim 46, Sugaya discloses an optical amplifier, comprising:
 - a plurality of optical amplification mediums for producing a gain, the gain having gain-characteristics; [Fig. 27, #122]
 - a gain controller maintaining a constant population inversion ratio for each of the optical amplification mediums; and [#60₁]
 - a gain-equalizer positioned after each optical amplification medium, *and equalizing the gain-characteristics of the optical amplification medium*, each gain-equalizer equalizing the gain-characteristics of the preceding optical amplification medium. [#64]
- Regarding claim 47, Sugaya discloses an optical amplifier, comprising:

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- a plurality of optical amplification mediums, each producing a gain with a gain-characteristic; [Fig. 27, #122]
 - a gain controller controlling the gain-characteristic of each of the optical amplification mediums with substantially equal gain-characteristics; and [#60₁]
 - a plurality of optical gain-equalizers respectively positioned after each optical amplification medium *equalizing each output light of the preceding optical amplification medium and outputting a subsequent output light*, of a predetermined wavelength band, having substantially flat power characteristics. [#64]
- Regarding claim 36, Sugaya discloses an optical amplifier according to claim 35, wherein the gain equalizers have nearly the same gain characteristic. [Sugaya discloses all amplifier stages 122 as the same]
- Regarding claim 37, Sugaya discloses an optical amplifier according to claim 35, wherein the optical amplifier mediums have nearly even gain characteristics. [Fig. 18c]
- Regarding claim 38, Sugaya discloses an optical amplifier according to claim 35, wherein the optical amplification mediums are made of erbium doped fibers. [Col. 6, lines 57-59]
- Regarding claim 39, Sugaya discloses an optical amplifier according to claim 35, wherein the constant gain of the optical amplification mediums is associated with an inversion ratio of about 0.8 to about 1.0 within the amplification medium. [The

inversion ratio is a direct result of the pumping power, this is therefore a statement of intended use/method limitation]

- Regarding claim 41, Sugaya discloses an optical amplifier according to claim 35, wherein the gain equalizer obtains equalized gain within a wavelength-band from about 1490 nm to about 1530 nm.
- Regarding claim 42, Sugaya discloses an optical amplifier according to claim 35, wherein each gain equalizer attenuates gain at a peak wavelength. [Inherent, since no tenable filter can attenuate evenly over the continuum of electromagnetic frequencies, nor can it have an infinite attenuation at any frequency, therefore all filters must therefore attenuate at one frequency more than others, and thus, every filter in an optical amplifier attenuates gain at a peak wavelength.]
- Regarding claim 44, Sugaya discloses an optical amplifier according to claim 35, wherein each gain equalizer produces an output, and the output has a nearly even gain characteristic. [Fig. 18c]
- Regarding claim 48, VOAs come in either transparent-off or transparent-on versions.

Conclusion

7. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

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8. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

9. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

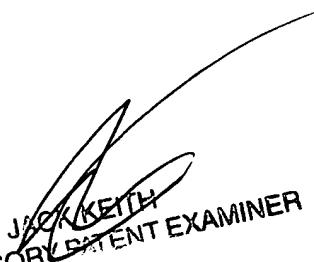
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



4/19/2007



JACK KEITH
SUPERVISORY PATENT EXAMINER